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10/18/05

Casey L. Martin

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Chia-Hsun Chen, *et al.*

Examiner: Sanjiv Shah

Serial No: 09/973,242

Art Unit: 2176

Filing Date: October 9, 2001

Title: SYSTEM AND METHOD PROVIDING DIFFGRAM FORMAT

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APPEAL BRIEF

Dear Sir:

Appellants' representative submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP297US].

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I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Microsoft Corporation, the assignee of the present application.

II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellant, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1-19 and 22-33 are currently pending in the subject application and are presently under consideration. Claims 1-19 and 22-33 stand rejected by the Examiner, and claims 20 and 21 have been cancelled. The rejection of claims 1-19 and 22-33 is being appealed.

IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

No amendments have been entered subsequent the Final Office Action dated May 18, 2005.

V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))**A. Independent Claim 1**

Independent claim 1 recites a computer-implemented system for differentiating at least two XML data sources, wherein the system comprises a difference component within a computer that determines differences between the XML data sources, and a formatter associated with the difference component that describes and outputs the differences together with a representation of at least one of the XML data sources. (*See, e.g.,* page 5, line 23 – page 6, line 15).

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B. Independent Claim 14

Independent claim 14 recites a computer-implemented method to facilitate XML data processing, the method comprises comparing two or more source files to determine if differences exist between the source files, filling a container with previous state results and current state results based at least in part upon the comparison, and determining whether corrective procedures should be taken with respect to data within a database as a function of the comparison. (*See, e.g.*, p. 6, line 28 – p. 7, line 14, and p. 8, lines 8-18).

C. Independent Claim 22

Independent claim 22 recites a computer-implemented system to facilitate communication of a data source, wherein the system comprises a transmission system within a computer that determines a previous and a current state of a data source, and a container configured and output by the transmission system having tags to define boundaries for the data sources, the container including an indication of the previous and the current states of the data sources within the defined boundaries. (*See, e.g.*, p. 6, line 28 – p. 7, line 14).

D. Independent Claim 24

Independent claim 24 recites a computer readable medium having stored thereon a data structure to represent XML data, the data structure comprises a container field that delineates boundaries of an XML data source, a previous state field associated with the container field comprising data representing a prior status of the XML data source, and a current state field associated with the container field comprising data representing one or more changes to the XML data source. (*See, e.g.* p. 6, line 28 – p. 7, line 14).

E. Independent Claim 25

Independent claim 25 recites a computer-implemented system to facilitate XML data communications, the system comprises means for determining differences between two or more XML source files (*See, e.g.*, p. 5, lines 23-27), and means for representing previous states and current states corresponding to the differences between the two or more XML source files. (*See, e.g.*, p. 6, lines 1-9).

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The "means for" limitations described above are identified as limitations subject to the provisions of 35 U.S.C. §112 ¶6. The structures corresponding to these limitations are identified with reference to the specification and drawings in the above noted parentheticals.

F. Independent Claim 26

Independent claim 26 recites a computer-implemented system to communicate XML data between nodes, wherein the system comprises a first node operatively coupled to a database resident within one or more computers, the database having one or more data records, and a buffer associated with the first node that reads the database and compares a reference data source to determine differences among the one or more data records, the first node constructs one or more diffgrams that describe the differences between the reference data source and the one or more data records, the diffgram further includes a representation of at least one of the data records. (*See, e.g.*, p. 7, line 24 – p. 8, line 7).

G. Independent Claim 30

Independent claim 30 recites a computer-implemented system to communicate XML orders between nodes, wherein the system comprises an ordering subsystem resident upon a computer to generate orders to one or more databases, the one or more databases having one or more inventory records, and a component associated with the one or more databases that compares the one or more inventory records to determine differences among the orders, the component constructs one or more diffgrams that describe the differences between the one or more inventory records and the order to indicate status of the inventory. (*See, e.g.*, p. 9, lines 12-24).

H. Independent Claim 31

Independent claim 31 recites an XML compatible diffgram resident upon a computer that stores states of an XML data source, the diffgram comprises a container to describe boundaries of the diffgram, a first component that indicates a prior state of the

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XML data source, and a second component that represents one or more state changes to the XML data source. (*See, e.g.*, p. 6, lines 3-13).

VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A. Claims 1-19 and 22-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Multer, *et al.* (US 6,694,336) in view of Baisley (US 6,502,112).

VII. Argument (37 C.F.R. §41.37(c)(1)(vii))

A. Rejection of Claims 1-19 and 22-33 Under 35 U.S.C. §103(a)

Claims 1-19 and 22-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Multer, *et al.* (US 6,694,336) in view of Baisley (US 6,502,112).

Reversal of this rejection is respectfully requested for at least the following reason.

Multer, *et al.* and Baisley, alone or in combination, fail to teach or suggest each and every aspect of appellants' claimed invention.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success *must both be found in the prior art and not based on applicant's disclosure*. *See In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

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Claims 1 and 26

The invention as recited in the claims relates to a format for representing a current state of an XML document as well as a previous state of such document. To that end, independent claim 1 recites of *a formatter associated with the difference component that describes and outputs differences... between XML data sources... together with a representation of at least one of the XML data sources*. Claim 26 includes a similar element: *one or more diffgrams that describe the differences between a reference data source and one or more data records, the one or more diffgrams further includes a representation of one of the data records*. Multer, *et al.* and Baisley, alone or in combination, fail to teach or suggest such features of appellants' claimed invention.

Multer, *et al.* discloses systems/methods for synchronizing data between disparate applications and/or systems, regardless of application format. For example, Multer, *et al.* teaches that it may be desirable for a user to synchronize contact information within a cellular telephone with contact information within a personal digital assistant. Thus, if a change is made to information within the cellular telephone, the personal digital assistant can be automatically updated with the alterations. To effectuate synchronization between the cellular phone and the personal digital assistant, changes in data are determined. In more detail, a snapshot of a state of data is generated and stored in an application object store (e.g., a data store related to a particular application, such as an address book application). (See col. 11, lines 58-65). An application object outputs data upon entry/alteration of data by a user and/or computer, and the output of the application object is compared with the snapshot of data within the application object store. A differencing engine can then calculate differences in data between output of the application object and data within the application object store. (See col. 11, line 66 – col. 12, line 3). The differences can thereafter be forwarded to a separate application/system to facilitate synchronization. Thus, Multer, *et al.* discloses determining that alterations have been made to data, but does not (and the Examiner concedes as much) teach or suggest a diffgram that includes both differences between XML data sources and a representation of an XML data source (thus enabling representation of a current state and a previous state of an XML document). The Examiner contends, however, that Baisley teaches such aspects. Appellants' representative respectfully disagrees.

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In more detail, the Examiner asserts that Fig. 2 teaches and/or suggests *a formatter... that describes and outputs differences... between XML data sources... together with a representation of at least one of the XML data sources*. This characterization of Fig. 2 of Baisley, however, is incorrect. All that is shown within such figure is that two XMI-based XML documents are compared to determine whether such documents are semantically equivalent (instead of textually equivalent). For instance, to undertake such a determination, semantic graphs for each of the documents are created and eventually compared. If the semantic graphs are different, then a return of "documents unequal" is made. (See Figs. 5, 6A, and 6B and accompanying text). Thus, an indication is provided if two XMI-based XML documents are semantically different - there is, however, no indication within Baisley that *differences* between XML data sources are output, much less *differences... between XML data sources... together with a representation of at least one of the XML data sources* as claimed.

The Examiner then asserts that an assignment of a unique identifier shown in Fig. 2 teaches *one or more diffgrams that describe the differences between a reference data source and one or more data records, the one or more diffgrams further includes a representation of one of the data records* as claimed. It is readily apparent from reviewing this figure, however, that all that is output is an indication of equal or unequal, and that even if the unique identifiers were representations of a data source, they are not output... together with... differences...as recited in independent claim 1. Furthermore, appellants' representative submits that the unique identifiers shown in Fig. 2 and described in Baisley are not representations of a data record, but instead are provided to objects within an XML document and are not output together with differences between XML data sources. In more detail, the unique identifiers enable comparison of two objects that are at a same depth from disparate root objects. (See col. 7, lines 24-26). Further, Fig. 3D of Baisley shows disparate objects having disparate unique identifiers, which are not representations of the XML document and are not output together with differences between XML data sources. This can be determined by noting that Fig. 3D, which is not output, represents two XML documents that are semantically identical. Thus, it is readily apparent that the combination of Multer, *et al.* and Baisley does not teach or suggest *a formatter associated with the difference component that describes*

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and outputs differences... between XML data sources... together with a representation of at least one of the XML data sources as recited in independent claim 1 (and claims 2-13 which respectively depend therefrom), and further fails to teach or suggest *one or more diffgrams that describe the differences between a reference data source and one or more data records, the one or more diffgrams further includes a representation of one of the data records* as recited in claim 26 (and claims 27-29 which respectively depend therefrom).

Claims 14 and 22

With respect to independent claim 14, neither Multer, *et al.* nor Baisley teach or suggest *filling a container with previous state results and current state results based at least in part upon the comparison*. Likewise, the combination of Multer, *et al.* and Baisley fails to disclose *a container configured and output by a transmission system having tags to define boundaries for... data sources, the container including an indication of... previous and... current states of the data sources within the defined boundaries* as recited in independent claim 22. The Examiner asserts that such claimed aspects are taught by Multer, *et al.* within the abstract. Appellants' representative respectfully disagrees. Multer, *et al.* discloses storing previous state information within an application data store (relating to a particular application). When the related application is utilized to alter data (*e.g.*, alterations are made to data by way of the application), data resulting from the alteration is compared with the previous state information within the application data store. Differences detected between the data are then delivered to a server and/or directly to a disparate system/application. There is, however, no teaching or suggestion of a container that includes both previous state results and current state results, as a data package generated through utilization of the teachings of Multer, *et al.* solely includes differences between data and, if necessary, instructions for enabling synchronization (which do not relate to states of the data). Thus, it is clear that Multer, *et al.* fails to teach or suggest *container including an indication of... previous and... current states of the data sources* as recited within the subject claims.

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Claims 24, 25, 30, and 31

With regard to independent claim 24, Multer, *et al.*, in contrast to the Examiner's assertions, fails to teach or suggest a *container field* and associated *previous state fields* and *current state fields* as claimed. The Examiner cites the abstract of Multer, *et al.* to make obvious these claimed aspects - however, the abstract merely describes an application data store that maintains a representation of data associated with a previous state. Therefore, at most, Multer, *et al.* describes a corollary to a previous state field, but clearly neglects to disclose a single *data structure* that includes the claimed *container field, the previous state field, and the current state field*.

Referring to independent claim 25, such claim recites *means for representing previous states and current states corresponding to... differences between the two or more XML source files*. Multer, *et al.* fails to disclose these claimed features. Rather, Multer, *et al.* describes representing differences between source files and then delivering such differences to a separate device/application to facilitate synchronization. Further, given the above deficiencies of Multer, *et al.*, it is also apparent that Multer, *et al.* fails to disclose *a container to describe boundaries of a diffgram, a first component that indicates a prior state of an XML data source, and a second component that represents one or more state changes to the XML data source* as recited in claim 31.

With respect to independent claim 30, both Multer, *et al.* and Baisley are silent with regard to an *ordering system, a comparison of inventory records, and indicating status of inventory*. As stated above, Multer, *et al.* teaches a synchronization system that synchronizes data between applications, systems, and/or devices, and Baisley discloses determining whether XML documents are identical. Nowhere in either cited reference is there any reference to an ordering system and/or inventory, much less indicating status of inventory as a function of a comparison between inventory records.

As neither Multer, *et al.* nor Baisley teach or suggest various novel aspects of the invention as recited in claims 1, 14, 22, 24-26, 30, and 31 (and all claims which depend therefrom), it is readily apparent that this rejection should be withdrawn.

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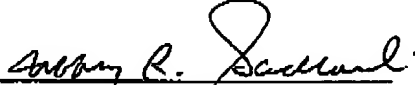
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B. Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-19 and 22-33 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP297US].

Respectfully submitted,
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VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1. A computer-implemented system for differentiating at least two XML data sources, comprising:
 - a difference component within a computer that determines differences between the XML data sources; and
 - a formatter associated with the difference component that describes and outputs the differences together with a representation of at least one of the XML data sources.
2. The system of claim 1, the difference component being a diff engine that determines the differences based upon one or more input options.
3. The system of claim 2, the options include at least one of: none, ignore empty element, ignore white space, ignore comments, ignore attribute order, ignore namespace, ignore prefix, and ignore DTD.
4. The system of claim 2, the diff engine adapted to receive a plurality of methods and associated parameters relating to the XML data sources and return one or more difference results.
5. The system of claim 4, the one or more difference results including at least one of: a node field, a lexical-equal field, a diff field, and one or more file fields.
6. The system of claim 4, the one or more results further comprising at least one of: element value not matched, white spaces not matched, comment node not matched, processing instructions not matched, text node not matched, attribute name or value not matched, namespaces not matched, prefix not matched, extra nodes in source file, extra nodes in target file, and node type not matched.
7. The system of claim 4, the formatter adapted to generate a container that includes the results of the diff engine.

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8. The system of claim 7, the container including a nested diffgram that includes difference information between one or more files, the files describe differences between the XML data sources.
9. The system of claim 7, the container including S states, S being an integer, the states representing comparisons between a reference file and one or more other files.
10. The system of claim 7, the container including S states, S being an integer, the states representing comparisons between a plurality of reference files and one or more other files.
11. The system of claim 7, the container including beginning and ending tags to define the boundaries of the container.
12. The system of claim 7, the container including an instance data field and a before data field to describe the differences between the XML data sources.
13. The system of claim 7, the container including at least one of an ID field, a changes field, and an error field.
14. A computer-implemented method to facilitate XML data processing, comprising:
comparing two or more source files to determine if differences exist between the source files;
filling a container with previous state results and current state results based at least in part upon the comparison; and
determining whether corrective procedures should be taken with respect to data within a database as a function of the comparison.
15. The method of claim 14, further comprising providing options that include ignoring one or more elements during the comparison.

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16. The method of claim 14, returning one or more difference results relating to the differences between the two or more source files.
17. The method of claim 14, further comprising nesting diffgrams *via* a comparison of two or more records that describe differences between XML data sources.
18. The method of claim 14, further comprising generating S states, S being an integer, the states representing comparisons between the two or more source files.
19. The method of claim 14, further comprising generating S states, S being an integer, the states representing comparisons between a plurality of source files.
20. (Cancelled).
21. (Cancelled).
22. A computer-implemented system to facilitate communication of a data source, comprising:
a transmission system within a computer that determines a previous and a current state of a data source; and
a container configured and output by the transmission system having tags to define boundaries for the data sources, the container including an indication of the previous and the current states of the data sources within the defined boundaries.
23. The system of claim 22, further comprising a receiving system to process contents of the container.

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24. A computer readable medium having stored thereon a data structure to represent XML data, comprising:

- a container field that delineates boundaries of an XML data source;
- a previous state field associated with the container field comprising data representing a prior status of the XML data source; and
- a current state field associated with the container field comprising data representing one or more changes to the XML data source.

25. A computer-implemented system to facilitate XML data communications, comprising:

- means for determining differences between two or more XML source files; and
- means for representing previous states and current states corresponding to the differences between the two or more XML source files.

26. A computer-implemented system to communicate XML data between nodes, comprising:

- a first node operatively coupled to a database resident within one or more computers, the database having one or more data records; and
- a buffer associated with the first node that reads the database and compares a reference data source to determine differences among the one or more data records, the first node constructs one or more diffgrams that describe the differences between the reference data source and the one or more data records, the diffgram further includes a representation of at least one of the data records.

27. The system of claim 26, the one or more diffgrams employed to at least one of correct erroneous entries and update data records that have changed over time by enabling the database to update data identified by state information included in the diffgram.

28. The system of claim 26, the one or more diffgrams employed to reconstruct a faulted database.

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29. The system of claim 26, the one or more diffgrams employed to synchronize the reference data source to one or more other databases.

30. A computer-implemented system to communicate XML orders between nodes, comprising:

an ordering subsystem resident upon a computer to generate orders to one or more databases, the one or more databases having one or more inventory records; and

a component associated with the one or more databases that compares the one or more inventory records to determine differences among the orders, the component constructs one or more diffgrams that describe the differences between the one or more inventory records and the order to indicate status of the inventory.

31. An XML compatible diffgram resident upon a computer that stores states of an XML data source, comprising:

a container to describe boundaries of the diffgram;

a first component that indicates a prior state of the XML data source; and

a second component that represents one or more state changes to the XML data source.

32. The system of claim 1, the formatter outputs a data packet that comprises:

a first data field representing a previous state of XML data; and

a second data field representing a current state of the XML data.

33. The system of claim 32, the data packet transmitted to at least one of: a local network system, a remote network system, a local database, and a remote database.

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IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

None.

X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

None.